

Nodes and Venues

- Component Overview
- Access Grid Nodes
- Virtual Venues
- Future Plans

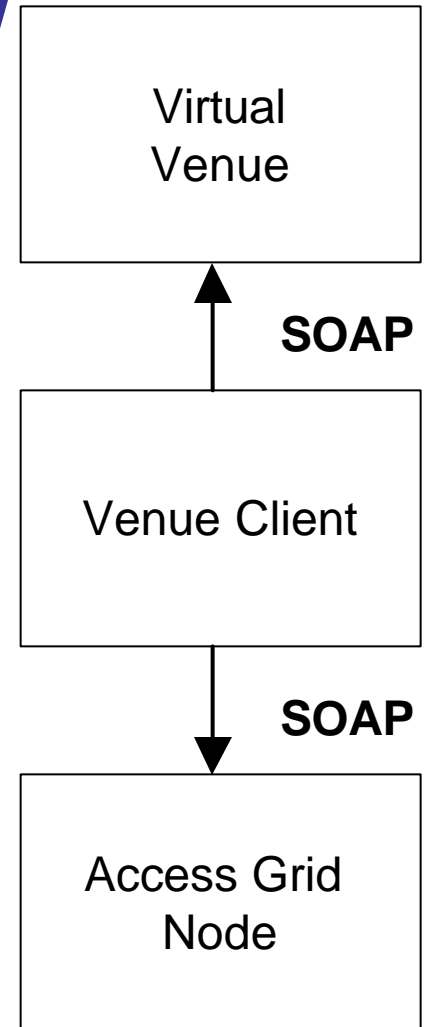


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Component Overview

High-level components include:

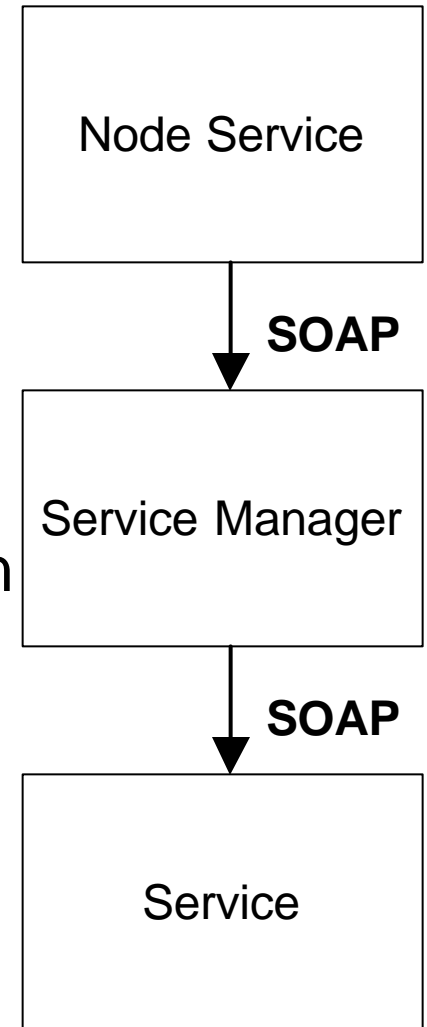
- Node – collection of media resources
- Virtual Venue – virtual meeting place
- Venue Client – user software layer between a Venue and a Node



Access Grid Nodes

An Access Grid Node has the following components:

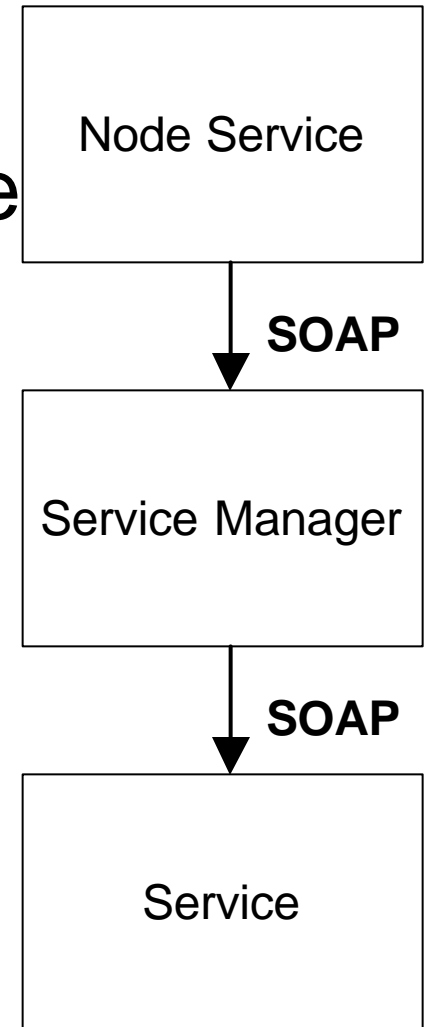
- Node Service
Central contact point for a Node
- Service Manager(s)
One per host, to control execution of Services
- Service(s)
Encapsulate media resources and software to deliver streams



Access Grid Nodes

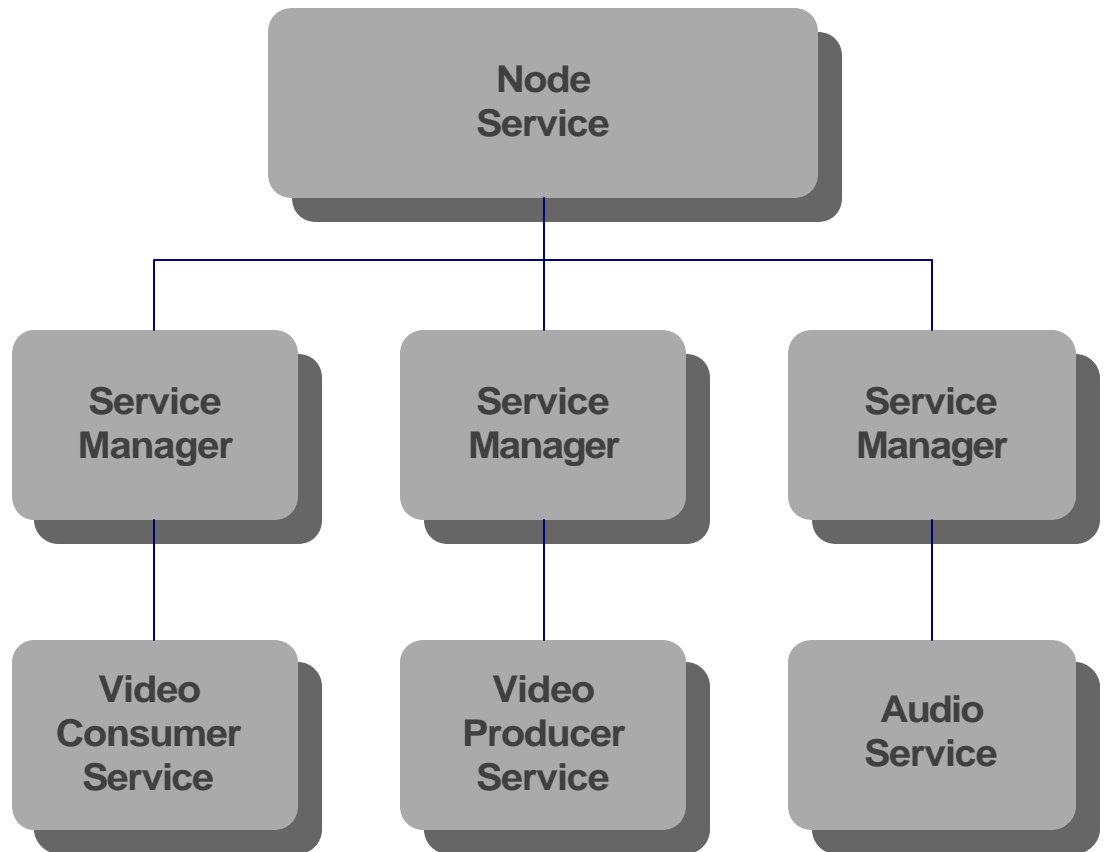
An Access Grid Node has the following behaviors:

- Deliver streaming media
- Configure stream addresses
- Configure media streams
- Store/load configurations



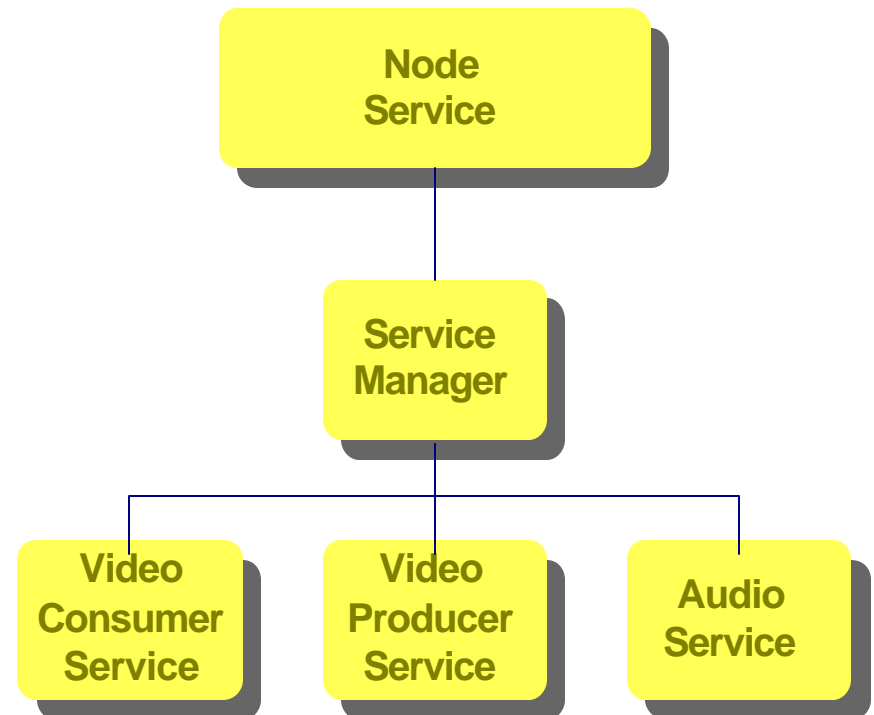
Access Grid Nodes

- A typical Room Node has this structure: a Service Manager controlling the Services on each machine.
- The capabilities of the Node are determined by the Services installed.



Access Grid Nodes

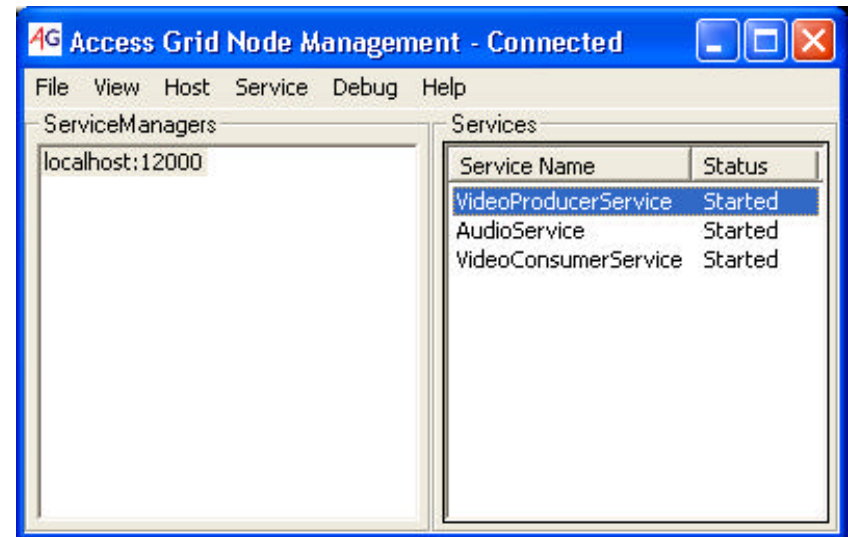
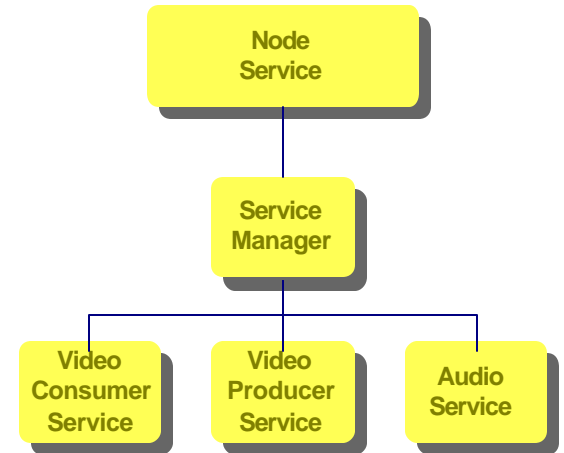
- A laptop Node has this structure: a single Service Manager controlling the Services.



Node Management

Node Management UI

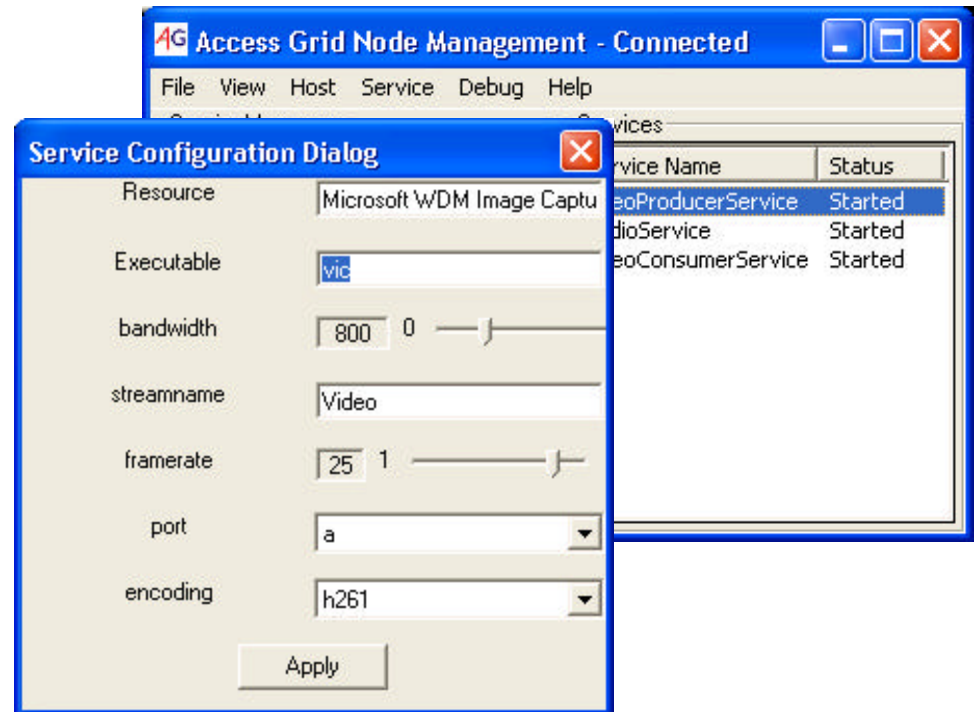
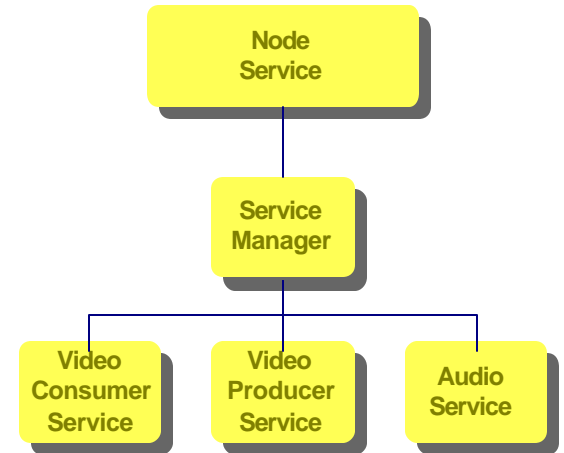
- Add Service Managers
- Store/Load configurations
- Add Services



Node Management

Node Management UI

- Add Service Managers
- Store/Load configurations
- Add Services
- Configure Services



Node Management

- While AG1 Nodes consist of a collection of hardware in a single, static configuration, AG2 enables multiple configurations:
 - One stream for a presentation (e.g. an instructor)
 - Multiple streams for a group attending a presentation (e.g. a classroom)
 - High-bandwidth/Low-bandwidth configurations



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Venues

In AG1, the Venue is a container for media addresses. In AG2, the Venue also contains User data:

- Users
- Data
- Applications
- Services
- Nodes
- Connections to other venues



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Venues

A Venue has the following behaviors:

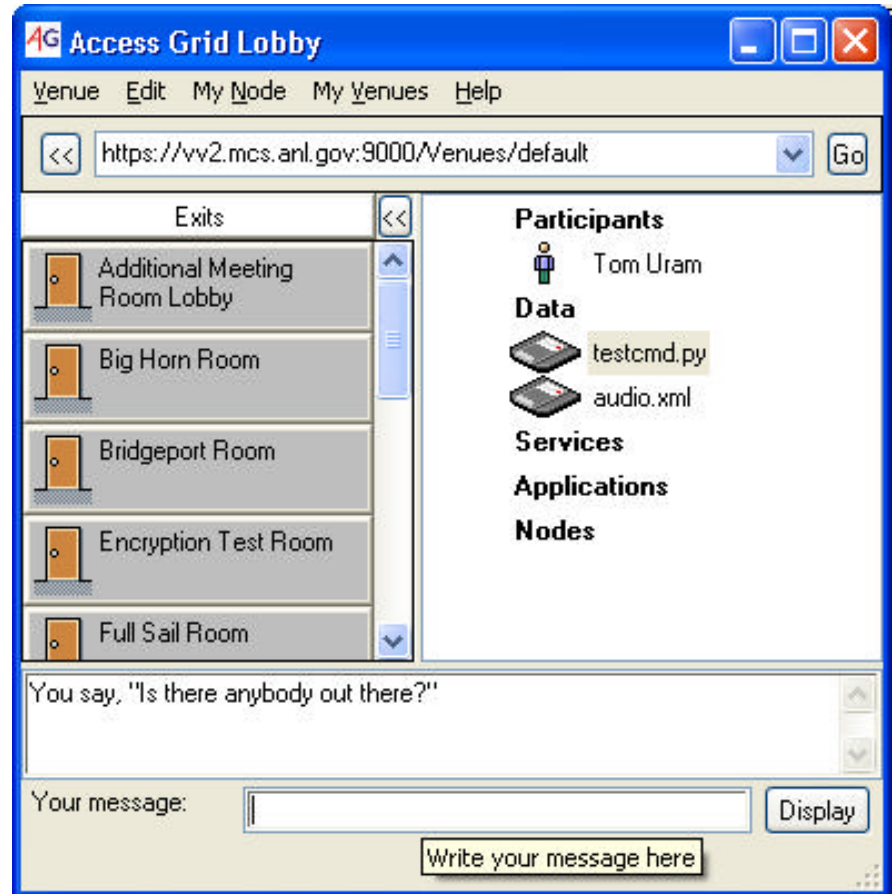
- Maintain state
 - users entering/exiting
 - data added/removed
 - ...
- Provide coherence to clients through events



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Venue Client

- Displays venue content
- Enables navigation
- Integrates with Node Service



Venue/VenueServer Management

The screenshot shows a web browser window titled "Venue Management". The address bar displays "Venue Server Address: https://vv2:9000/VenueServer". Below the address bar are three tabs: "Venues", "Configuration", and "Services", with "Venues" being the active tab. The main content area is divided into two panels. The left panel, titled "Venues", contains a list box with the following entries: "Penn State", "Pittsburgh Supercomputing Center", "EPCC, University of Edinburgh", "West Virginia University", "National Center for Supercomputing Research Center", "Dartmouth College, Research Center", "Louisiana Biomedical Research Center", "Sandia National Laboratories Center", "University of South Carolina", "Universidade Federal do Rio de Janeiro", and "Johnson and Johnson". Below the list box are three buttons: "Add", "Modify", and "Delete". The right panel, titled "Penn State", contains a text area with the text "Dedicated room for Penn State." Below this is a "URL:" label followed by a text box containing "https://vv2.mcs.anl.gov:9000/Venues/00". At the bottom of the right panel is an "Exits:" label followed by a text box containing "Institution Lobby".

Venue Management

Venue Server Address: <https://vv2:9000/VenueServer>

Venues Configuration Services

Venues

- Penn State
- Pittsburgh Supercomputing Center
- EPCC, University of Edinburgh
- West Virginia University
- National Center for Supercomputing Research Center
- Dartmouth College, Research Center
- Louisiana Biomedical Research Center
- Sandia National Laboratories Center
- University of South Carolina
- Universidade Federal do Rio de Janeiro
- Johnson and Johnson

Add Modify Delete

Penn State

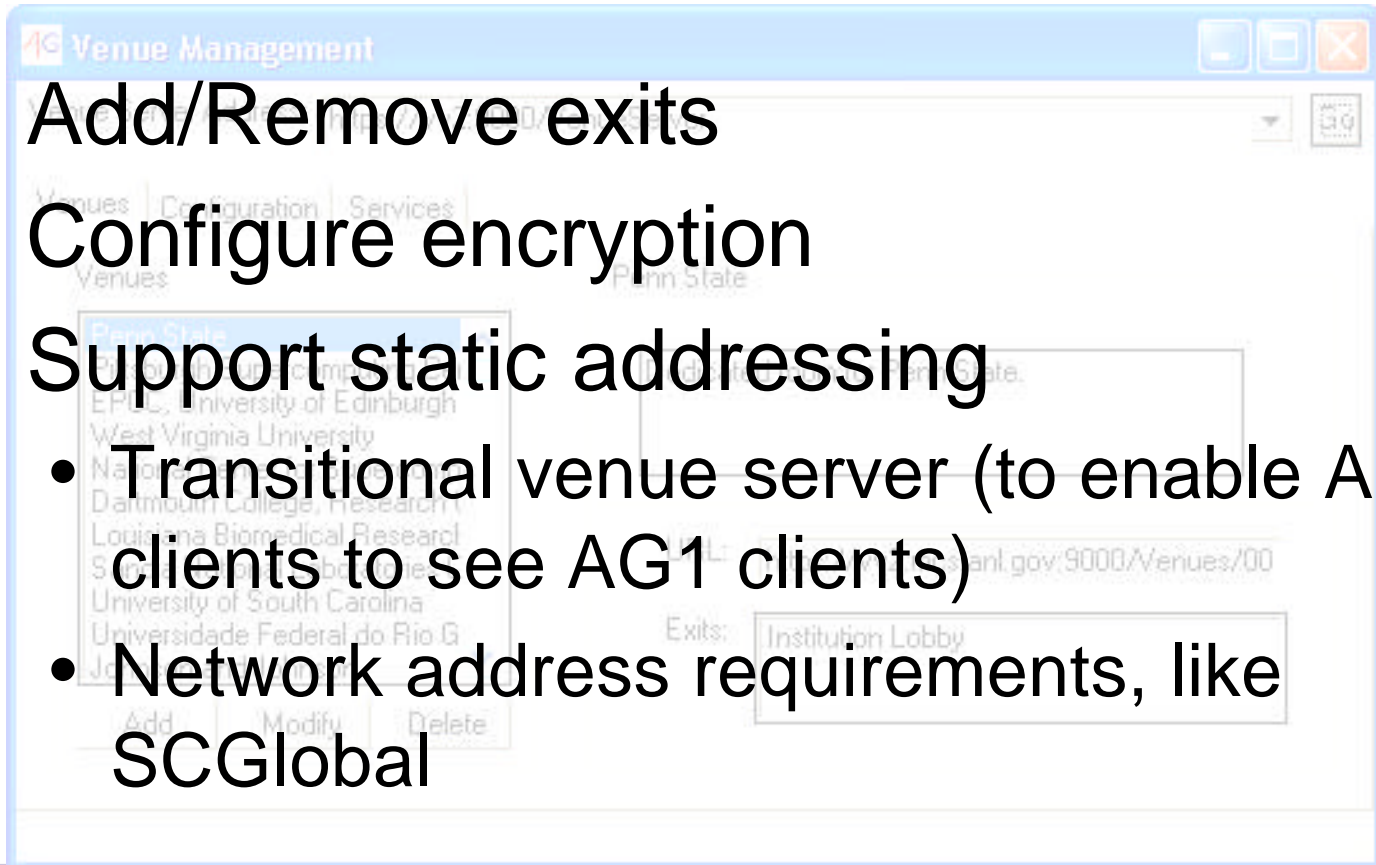
Dedicated room for Penn State.

URL: <https://vv2.mcs.anl.gov:9000/Venues/00>

Exits: Institution Lobby

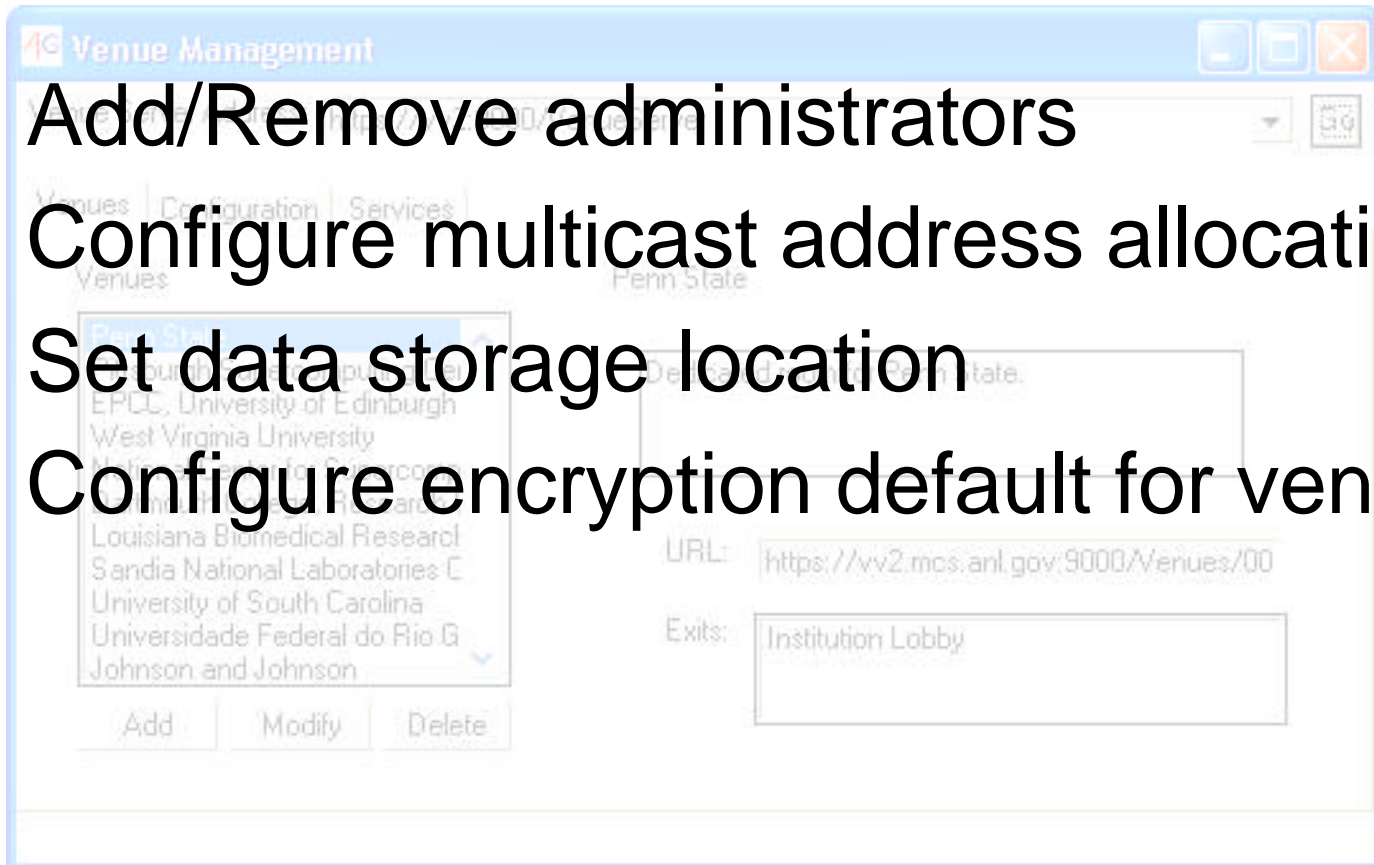
Venue Management

- Add/Remove exits
- Configure encryption
- Support static addressing
 - Transitional venue server (to enable AG2 clients to see AG1 clients)
 - Network address requirements, like SCGlobal



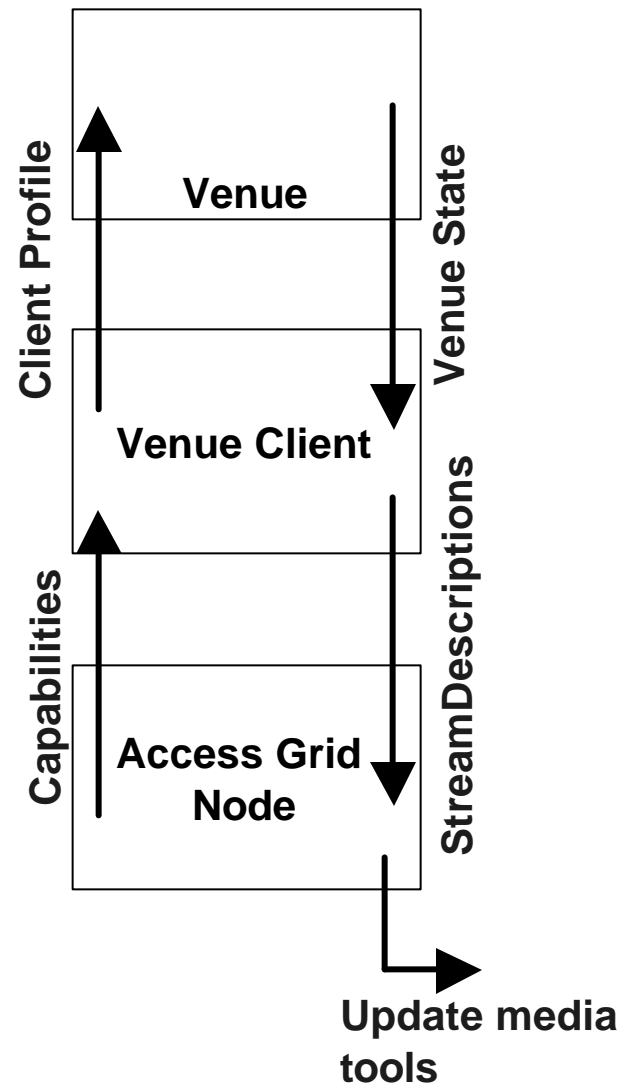
Venue Server Management

- Add/Remove administrators
- Configure multicast address allocation
- Set data storage location
- Configure encryption default for venues



Node/VenueClient/Venue Interaction

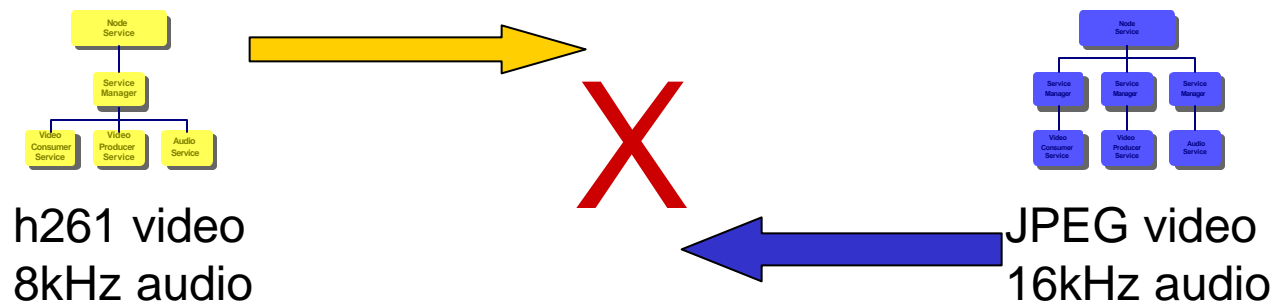
- A user enters the Venue with the collected capabilities of his node, which are included in the ClientProfile
- If the user has the capability of producing a media stream not present in the Venue, the Venue allocates a new stream
- Streams are present in the Venue as long as participants are providing that stream to the Venue
- The returned Venue State describes venue content (users, data, etc.) and stream descriptions
- Stream descriptions are passed to the Node to update media tools



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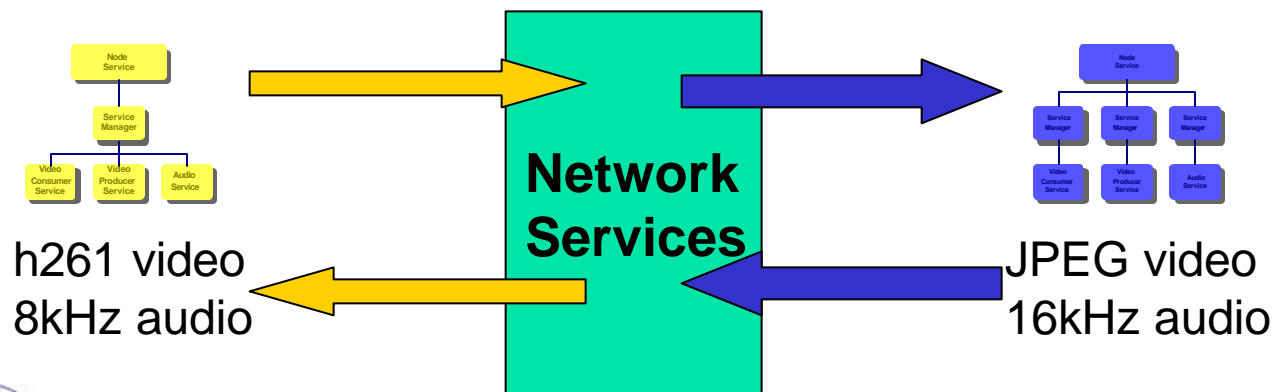
Network Services

Users with incompatible capabilities could be in a venue together, but be unable to interact



Network Services

The Venue could resolve these incompatibilities with appropriate adapters. We call these adapters “Network Services”.



Shared Applications

AG2 integrates with externally developed shared applications

- Similar to web browser plug-ins that are added to the venue client
- Distributed as independent chunks of software
- Provide coherent state through event distribution
- Allow storage of application state in the venue

Immediate examples include:

- Web browser
- Presentation tool
- Whiteboard



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Plans for the next year

- Venues and Venue Server
 - Capabilities Negotiation
 - Stream Selection
 - Venue Server Registry
 - Automatic bridging



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Plans for the next Year

- Nodes
 - Node advertisement
- Node Services
 - High-res Video
 - Stereo Audio
 - Display Service supporting advanced layout
- Operator Panel
 - Consolidate the hands-on operational functionality of existing media tools in a single, compact interface



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